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Report Lists 62 Universities

US Campuses "Targeted" by Spies, Pentagon Warns

In a move likely to stir envy among the slighted, the Pentagon has for the first time named the American universities that it says have been "targeted" for scientific and technical espionage by Soviet agents. These institutions, 62 in number, are among "some of the finest in the United States," says a new intelligence report, and it describes the Soviet interest "as a vote of confidence in US academic research." (See P. 2 for the honor roll.)

The report states that "The majority of information sought at universities . . . was applied technology and engineering, and not fundamental or basic research." But it also says that the Soviets are on the lookout for "fundamental research for both Soviet military- and civilian-related science developments." Left unclear, however, is whether the Soviets have ever gotten anything, or have even made a serious stab at academic espionage, beyond assembling publicly available lists of university-based research programs.

As tensions persist between academe and the Pentagon over the necessity for security in university laboratories, the report leaves the clear impression that the menace is growing and close, if not already on campus. In the words of one non-government participant in the long-running controversy about academe and security, "It isn't what the report says, which doesn't add up to very much, anyway, but why they've decided to say it at this time." One educated speculation is that with the pro-summit wing of the ideologically bifurcated Reagan foreign-policy establishment favorable to scientific exchanges as a political sweetener for a Soviet-American rapprochement, the hardline Pentagon wing is hurrying to poison the well.

Small Business R&D Program on Way To $500 Million in Awards—Page 4

The Soviet-designated elite institutions are listed in *Soviet Acquisition of Militarily Significant Western Technology: An Update*, released last month by Defense Secretary Weinberger as part of his ongoing pre-summit educational campaign about what those Russians are really like. *Update* is the successor to a 1982 report which also said they are a thieving bunch, addicted to American science and technology. But the new report is more bountiful with its contentions, which are said to be based on a major espionage bust in France.

The reason the Soviets must steal, it says, is that they suffer from "the lack of adequate incentives, inflexible bureaucratic structures, excessive secrecy, and insularity from the West." And the way they steal, it goes on, is by exploiting the naive openness of American society.

As far as acquisitions of hardware and technical documents are concerned, this thesis predates the Reagan Administration. The new report embellishes past allegations by offering long lists of stolen US-developed weapons technologies, their incorporation into Soviet military systems, and the Soviet agency that made the haul. But it is in regard to academic science and engineering that the new report is noteworthy, for the Pentagon had previously taken the position that, with some exceptions, university-based activities were of marginal interest to Soviet espionage operatives.

Soviet headquarters for prying into western science and technology, says the report, is the Military Industrial Commission (VPK) of the Presidium of the Council of

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In Brief

The House Appropriations Committee delivered a huge budget increase for NIH last week—$616 million above the President's request, for a total of $5.2 billion for fiscal 1986, which begins today. The amount is $335 million above the 1985 appropriation. NIH was the only agency that received an increase in a Labor, Health and Human Services and Education appropriations bill that totaled $105 billion. Still to be heard from is the counterpart Senate Committee, which is also a big supporter of NIH. The big test will come when the bills go to the floor, where they will face strong anti-spending arguments.

Based on a study requested by the Senate Appropriations Committee, the Office of Technology Assessment reported last week that US spending on tropical diseases research totals under $100 million a year. "Opportunities for expanding US influence and contributions in this field are great," OTA states. ("Status of Biomedical Research and Related Technology for Tropical Diseases," $11, Stock No. 052-003-00987-1; Superintendent of Documents, USGPO, Washington, DC 20402).

Six foreign-controlled firms were among the 10 companies receiving the largest number of US patents issued last year, according to Intellectual Property Owners, a Washington-based association, which also reports that the percentage of patents awarded to foreigners rose from 20 percent in 1968 to 42 percent in 1984. Top 10 patent awardees: GE, IBM, Hitachi, Toshiba, US Philips, Canon, RCA, Siemens, Mobil, Nissan.

. . . Says Orchestrated Effort Aimed at Universities

(Continued from page 1)

Ministers, which has commanded the services of the Soviet Academy of Sciences, the State Committee for Science and Technology (GKNT), and the State Committee for Foreign Economic Relations (GKES).

"Although these organizations are involved principally in overt collection of information for nondefense industries, they also are involved in worldwide overt collection of information and technical data in response to specific VPK tasking for military research projects. Sometimes they are tasked jointly with the KGB and other collectors to satisfy those requirements."

Where in the academic world are they looking? Under a heading of "Selected US Universities Identified by the Soviets as Sources of Needed Applied Technology," a map pinpoints and names 62 institutions around the country, grouping them in "Various Periods During the 1970s, 1980s, 1970s and 1980s." A note on bottom of the map states:

Over the past decade about 40 percent of the US universities shown above were identified in the VPK program as sources of applied science and technology principally for Soviet military aerospace developments. The State Committee for Science and Technology also issues requirements against US universities, but principally for fundamental research for both Soviet military- and civilian-related science developments.

Known Soviet collectors at US and other Western universities include those from the intelligence services, scientists within the Academy of Sciences, and scientists from the State Committee for Science and Technology who come to study in the United States. Many of these collectors are also involved in spotting and assessing US scientists for potential recruitment as agents.

The text of the report provides a few details about some of universities listed on the map, but they don't add up to much. Thus, it states that "Carnegie-Mellon, Cincinnati, Kentucky, MIT, Michigan, and Wisconsin were among those universities (as well as defense contractors) identified in the VPK program as sources for information on new high-strength, high-temperature alloys, such as titanium, on lightweight structural alloys, and on powder metal processing."

The text continues: "California Institute of Technology, Harvard, and MIT were targeted for techniques, methodologies, and results for evaluation of strategic concepts on space, aviation, and missile systems. California Institute of Technology and MIT were also cited as sources for transonic, supersonic, and hypersonic aerodynamic research, as were the Polytechnic Institute of New York (Brooklyn), Princeton, and Stanford.

"Kansas, MIT, Ohio State, and Penn State were identified for data relating to electrohydraulic control sys-

(Continued on page 3)

The following universities are listed in Soviet Acquisition . . . *as previously or currently "Identified by the Soviets as Sources of Needed Applied Technology."*

Alabama	MIT
American	Miami
Arizona	Michigan
Brandeis	Minnesota
Caltech	Nebraska
Carnegie-Mellon	NYU
Chicago	North Carolina
Cincinnati	Northwestern
Clemson	Ohio
Colorado	Ohio State
Colorado State	Oregon
Columbia	Pennsylvania
Dayton	Penn State
Denver	Pittsburgh
Duke	Polytechnic (Bklyn.)
Florida	Princeton
George Washington	Purdue
Harvard	Rensselaer
Hawaii	Stanford
Illinois	Tennessee
Illinois Tech	Texas
Indiana	UC Berkeley
Iowa State	UC San Diego
Johns Hopkins	UCLA
Kansas	USC
Kentucky	Utah
Lehigh	Vanderbilt
Loyola	W. Virginia
Maine	Wisconsin
Maryland	Wyoming
Massachussets	Yale

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. . . Universities Cool to DoD's Security Demands

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tems applicable to aircraft, helicopters, and the Soviet version of the US Space Shuttle. Research applicable to future high-energy laser and particle beam weapons was sought from MIT, Denver, and Princeton."

A chart showing numbers and types of Soviet visitors to selected American universities says, "There is a rough correlation between the number of VPK-identified *military* research needs and the number of visiting Soviet Bloc scientists with backgrounds related to those technical areas. There is, however, little data indicating that specific scientists were tasked to acquire information for Soviet military research projects."

Soviet Acquisition . . . bears no marks of origin, authorship, or any bibliographic date, apart from its title and the date September 1985. However, it was unveiled by Defense Secretary Weinberger, and there's a supply of copies at the Office of Industrial and Governmental Liaison, Pentagon, 4C767, Washington, DC 20301-2600; tel. 202/697-7840.

Soviet Acquisition of Militarily Significant Western Technology has been published at a time when academic institutions and professional organizations have been strongly asserting their refusal to partake of classified research or go along with the Pentagon's erratic demands for barring foreigners from selected technical meetings that are unclassified and othewise open. The recent letter (see below) from the heads of 12 engineering societies to Weinberger is one example of a growing determination to challenge the Pentagon's hardliners. Another is in the growing academic boycott against the Strategic Defense Initiative, though that is also inspired by concerns about SDI's arms-control effects and costs, as well an aversion to security classification on campus.

James Ionson, SDI's Director of Innovative Science and Technology—which awards money for research in universities—has assured academic leaders that campus-based research will almost always be unclassified (see P. 8). But after experiencing years of unpredictable behavior the universities are not trustful.

Weinberger and his principal aide in these matters, Assistant Secretary Richard N. Perle, want academe to adopt the siege mentality that they've instilled in the Pentagon. Though hungry for that DoD money, the universities, with very few exceptions, are saying No.—DSG

12 Professional Society Heads Protest Pentagon Security Tactics

Inspired by a sporadic series of descents on scientific and technical meetings by Pentagon gumshoes, the presidents of 12 major professional societies sent a letter of protest, dated September 17, to Defense Secretary Weinberger. Following are excerpts.

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. . . it is important to bring to your attention our shared concerns regarding new controls being applied by the Department of Defense to unclassified technical information. These controls have resulted in the disruption of technical conferences and conference planning and have forced the introduction of a new category of technical session, one that is unclassified but with limited access.

In science and in engineering research, the open exchange of information ensures that critical peer review is applied to new advances . . . One of the principal missions of our organizations is to encourage and provide opportunities for such exchange . . . Since such advances are also important to national security, we feel impelled to advise you of the counterproductive consequences of the current DoD policies and of the limitations in our ability to respond to them.

New controls being applied to certain unclassified information by the Department of Defense have the effect of placing such information *de facto* into a new category of classification. Responsibility for implementing such controls must lie with the Government, and not with our organizations. Therefore, our organizations *will not be responsible for, nor will they sponsor, closed or restricted access technical sessions at meetings or conferences conducted under their auspices.*

. . . . We have already been discussing these matters with representatives of your Department. However, we believe that *your personal support* for these objectives will be needed to achieve the desired changes in policy and direction . . . .

James Oldshue, Am. Assoc. Eng. Soc.
Gerald Piel, AAAS
Charles A. Eldon, IEEE
Paul Pritzker, Nat. Soc. Prof. Eng
Robert R. Wilson, Am. Physical Soc.
Lewis Larmoe, Soc. Photo-Op. Eng.
Marvin DeVris, Soc. of Mfg. Eng.
Robert Shannon, Optical Society
Ellis Fields, ACS
Richard Karn, Am. Soc. Civil Eng.
Wilbur Meier, Inst. Industr. Eng.
T. Ken Pethe, System Safety Soc.

Small Business R&D Program Awards $111 Million

Initiated by Congress and reluctantly accepted by the Reagan Administration, the 3-year-old program requiring most federal agencies to award small businesses a slice of their R&D funds is on schedule toward becoming a major R&D bankroll. But it's also raising concerns that federal agencies are manipulating the program to support their own goals rather than the Congressional mandate to support research on saleable products.

The latest figures for the Small Business Innovation Research (SBIR) program, published last week, are a bit stale because of delays at the US Government Printing Office. They show that in fiscal 1984 (which ended September 30, 1984), the SBIR program awarded $111 million to 1337 firms. The projected total for fiscal 1987 is $500 million.

The initial hurdles for applicants are high. Of the 7955 proposals for the program's $50,000 Phase 1 awards for evaluating the feasibility of projects, only 999 received money in fiscal 1984. But the step to Phase 2, with awards for development up to $500,000, was easier. Of the 559 proposals from 1983's crop of Phase 1 applicants, 338 Phase 2 awards were successful.

The money is dispensed under a statutory formula which required almost all federal agencies with external R&D expenditures over $100 million a year to award small firms 0.2 percent of their R&D funds in 1983, rising to 1.25 percent in 1987.

In fiscal 1984, the formula produced $44 million in SBIR awards from the Defense Department, $23 million from the Department of Health and Human Services (almost all from NIH), $16 million from the Department of Energy, $13 million from NASA, and nearly $6 million from NSF.

When the program was introduced in Congress, the research-supporting agencies rightly regarded the set-aside requirement as an intrusion on their decision-making powers; the White House initially opposed the legislation as offensive to its marketplace philosophy. But the Administration yielded in return for support on the vote to provide AWACS aircraft for Saudi Arabia, and the opponents then had to be quiet.

While each agency runs its own SBIR program, overall monitoring was assigned to the Small Business Administration, whose Office of Innovation, Research and Technology offers a generally favorable account of the SBIR program in its latest report. But it notes that "There also appears to be a non-trivial and possibly growing number of Phase 1 projects whose relation to the intended purpose of [the program] is questionable"—a discreet means of suggesting that some agencies are using the program to do what they would have done in its absence, and are disregarding the legislative mandate to promote marketable innovations.

The report cites projects that "address fundamental scientific concerns with little or no attention" to progressing beyond Phase 2. "These awards," it adds, "may be related to an imbalance in proposal evaluation criteria: i.e., considerations of agency need overly dominating considerations of commercialization potential."

It also expresses concern about "Projects with minimal technical risk where SBIR efforts are focused, not

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White House Names Three For Long-Vacant NSF Posts

The White House has announced 3 senior appointments to the National Science Foundation, all of them long in coming, but none bearing the rightwing flavor that's increasingly evident in Washington as Reagan's lameduck henchmen seek to put their mark on the federal bureaucracy.

William Merrell Jr., Professor of Oceanography at Texas A&M, has been nominated to be Assistant Director for Astronomical, Atmospheric, Earth, and Ocean Sciences. Nominated for the National Science Board (NSB), NSF's policymaking body, are Craig C. Black, Director of the Los Angeles County Museum of Natural History, and Charles L. Hosler, Vice President for Research and Dean of the Graduate School, Pennsylvania State University.

The appointments, subject to routinely given Senate confirmation, are for posts that been long vacant. Merrell's job has been filled on an acting basis since May 1983, while the NSB appointments are for seats that became vacant in May 1984, when 8 appointments to the 25-member Board automatically expired; 1 vacancy still remains from that group.

Director Erich Bloch and other senior officials at NSF have openly complained about long delays in staffing top positions, but the White House has never shown concern about their distress. Viewing NSF as a bankroll for basic science that's ultimately useful for defense and industry, the Reagan Administration has been generous with money, raising NSF's budget by $500 million, to a current total of $1.5 billion, since 1981. It has refrained from installing ideological cranks on the Board or on the staff. The latest appointments continue that pattern, which suggests that, to the extent that high political circles are aware of NSF, they regard it as a well-run agency that's best left alone.

Letter: Fermilab Head Argues for Supercollider

Leon M. Lederman, Director of the Fermilab, recently wrote to SGR to express disapproval of our coverage of the proposed Superconducting Super Collider (SSC) particle accelerator. In response, and in hope of enlivening the torpid debate over this costliest of scientific facilities, SGR invited Lederman to state the case for the SSC. His contribution, uncut, follows. SGR invites responses as well as commentaries that address different points on this issue (limit: 500 words).

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SSC is a proposal by high-energy physicists to build an extremely powerful (and expensive) accelerator designed to help find the answer to One Question: What are the fundamental laws of nature? SGR's lack of enthusiasm and pejorative reporting has stimulated these remarks.

An increasing number of scientific disciplines depend on shared, centralized (and expensive) facilities for their programs. Nuclear and materials sciences, astronomy, indeed even those who do good science on table tops, collectively have requirements that add up to real money. SGR reflects skepticism about SSC. In "selling" (SGR) or communicating our vision, we hear questions about the value of science, about the impact of so costly a project on other sciences, on the need for international collaboration to reduce costs, and on the issue of pure research vs. more socially relevant science.

Why high-energy physics? HEP is the present phase of the 2500 year-old search for the fundamental laws of nature. Since the 17th century the frontiers were gravitation, optics, chemistry and electricity. In this century it was atoms, nuclei and now, the subatomic domain. Each phase was motivated by the quest for the laws of nature. As the focus shifted to smaller-distance domains, the previous fields matured and continued to enrich our culture and our technology.

The cost estimate for the SSC has been firm for several years. Including R&D and a hefty contingency, we get about $4 billion. This requires a bump in funding for HEP of about 60 percent for '86-'94. Similar bumps have appeared in the past 30 years and in no case can one find coincident depressions in funding for other sciences. We are committed to trying to reduce the cost by R&D, by inviting international collaboration and by squeezing on the parameters. We are cautiously optimistic that Japan and Canada will join; Europeans are involved in their own $2 billion program until about 1991. We would dearly love their help after this time. The SSC parameters are driven by specific scientific issues. We could keep busy with a lesser machine but without the assurance that the major obstacles to our present understanding would be overcome.

Truly basic research [in all fields in the US] receives about $5 billion annually, approximately 5 percent of the $110-billion [federal and industrial] investment in R&D. An increase of $1-2 billion could meet the most pressing needs of all basic research. Shortfalls in applied research also exist and what is needed is a plan for broad advance of science to insure the vitality of the nation at century's end.

In the face of national budget deficits, we should remember that the giants of our subject—Rutherford, Bohr, Schrodinger, Einstein, etc.—discovered the quantum theory and relativity in the 1920s, mastered the atom and space-time, and thereby changed the face of the 20th century. Buoyed by success, they and their students went on to the nuclear and the sub-

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Innovation

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on scientific/technical feasibility, but on identifying user needs. Many of these projects are studies of existing situations with little or no thrust toward technological innovation."

The report continues: "Such questionable projects are awarded by most SBIR agencies. The awarding of these projects may result from attempts to balance SBIR funding among the agencies' sub-units, even though some have programs that are less conducive to SBIR-type efforts.

"It is SBA's opinion that neither of the above categories is appropriate for SBIR," the report states, "and that, if such projects are important to the agencies' missions, they should be supported by non-SBIR funding mechanisms. Based on our sample, about 20 percent of the Phase 1 projects appear to fall into these categories; however, many are screened out in the Phase 2 process, thus reducing the percentage of questionable projects by about half. While the resulting level may be tolerable for a program of this scope, an increased awareness is required to insure that the number of such projects remains small."

In addition to the previously listed agencies, SBIR also involves the departments of Agriculture, Commerce, Education, Interior, and Transportation; also, EPA and the Nuclear Regulatory Commission.

(The report, *Second Year Results Under the Small Business Innovation Development Act of 1982*, 44 pages, is available without charge from SBA, Office of Innovation, Research and Technology, Room 500, 1441 L St. Nw., Washington, DC 20416; tel. 202/653-6458.)

OTA Report Knocks Star Wars as Dangerous Scheme

Ballistic Missile Defense Technologies, the most comprehensive publicly available expert review of the Administration's missile-swatting fantasies, was issued last week by the Congressional Office of Technology Assessment—and was promptly hailed by opponents of Star Wars and denounced by enthusiasts.

Leading the first group was Rep. Les Aspin (D-Wis.), Chairman of the House Armed Services Committee, which joined with the Senate Foreign Relations Committee in ordering the study. "What this means," Aspin said about the study, "is that after spending billions and billions of dollars, we could find that we have bought ourselves greater instability than the world has ever confronted in the nuclear age." On the other side was Daniel O. Graham, a retired Air Force general, who quit OTA's Star Wars panel last spring after he was accused of leaking sensitive material to critics of the study. Graham told the *New York Times* that the report was "ridiculous," and he characterized it as political rather than technological.

The report concedes that missile defense is not beyond the laws of physics, but otherwise it takes a dour view of SDI (in all of its various formulations), concluding that "Assured survival of the US population appears impossible to achieve if the Soviets are determined to deny it to us." It adds that safety might be obtained in a US-USSR cooperative transition to missile defense, but expressed strong doubts about the technical and political feasibility of simultaneously reducing weapons forces while phasing in defenses.

Preparation of the report was supervised by a 21-member advisory panel chaired by Guyford Stever, former NSF Director and White House Science Adviser. Members included retired Air Force General David Jones, former Chairman of the Joint Chiefs of Staff; Solomon Buchsbaum, Executive Vice President of AT&T Bell Labs; Richard Garwin, IBM fellow and longtime defense consultant and commentator; Robert McNamara, former President, World Bank, and Robert Clem, Director, Systems Sciences, Sandia Laboratories.

(325 pages, $12, GPO Stock No. 052-003-01008-9, Superintendent of Documents, USGPO, Washington, DC 20402; tel. 202/783-3238.)

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With the Star Wars report, OTA released another space-weapons study, *Anti-Satellite Weapons, Countermeasures, and Arms Control*, also produced under the supervision of the Stever panel. More topical than the Star Wars study because of the Air Force's recently successful vandalizing of a functioning research satellite, Solwind, *Anti-Satellite Weapons* is also less clearcut in its conclusions. While noting that the US is more dependent than the Soviets on satellites and, therefore, would benefit more from arms-control agreements to protect them, the report also states that "arms control could not guarantee the survival of US satellites attacked by residual or covert Soviet ASAT weapons." But, it goes on to suggest that the US can improve satellite survivability through limitations on testing, establishment of "keep-out zones" in space, and hardening of satellites against "cheap kills."

(146 pages, $6, GPO Stock No. 052-003-01009-7; Superintendent of Documents, etc., as above.)

In Print: Security Debate, Exchanges, R&D Tax Credits

National Security and Scientific Inquiry, transcript of a discussion by Defense Secretary Richard N. Perle, Stanford President Donald Kennedy, former CIA Deputy Bobby Inman, and former Under Secretary of Defense William Perry. They went at it for 3 hours in May at a limited-attendance meeting held at the National Press Club by the Scientists' Institute for Public Information, the Association of American Universities, and the AAAS. The issues and conflicting positions are clearly stated.

(32 pages, no charge, SIPI, 355 Lexington Ave., New York, NY 10017; tel. 212/661-9110.)

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US-Soviet Exchanges, proceedings of a conference in June 1984 sponsored by the Kennan Institute for Advanced Russian Studies, part of the Smithsonian Institution's Wilson Center; ranges over the facts and problems of Soviet-American exchanges in various scholarly fields, and includes the text of the favorable remarks about exchanges that President Reagan made to the conference.

(54 pages, no charge, Kennan Institute, Smithsonian Institution Building, Washington, DC 20560; tel. 202/357-2415.)

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The R&D Tax Credit: An Evaluation of Evidence on its Effectiveness, report for the Congressional Joint Economic Committee by staff economist Kenneth M. Brown, favors the credit, but not fervently. "Was the

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GAO Investigating High-Energy Lab Construction

Investigators from the General Accounting Office (GAO) are looking into charges that funds for major high-energy physics facilities have been shuffled to finance construction work prior to Congressional approval.

Behind the inquiry is a Senatorial suspicion that the high-energy chieftains have adopted the *fait-accompli* tactics of the Pentagon's big-weapons managers, who unilaterally plow ahead and then plead that it would be wasteful to turn back. The GAO, which labors exclusively for the Congress, is officially silent about work in progress. But a GAO source tells SGR that the investigators are currently examining records at the Germantown, Md., office of the Department of Energy (DOE); it's too early, he said, to extract any conclusions from what they've found.

The investigation, tentatively scheduled for completion in January, was requested by Senator J. Bennett Johnston (D-La.), ranking Democrat on the Appropriations Subcommittee on Energy and Water Development. In a letter dated May 3 to the Comptroller General, who heads the GAO, Johnston referred to DOE's major ventures and prospects in high-energy physics—the Continuous Electron Beam Accelerator Facility, the Relativistic Heavy Ion Collider, the Superconducting Super Collider, and the Los Alamos Meson Physics Facility.

The Subcommittee, he wrote, "is becoming increasingly concerned about these facilities and the manner in which they come to be proposed and approved by the Department." Johnson added that "millions of dollars are being spent on these accelerators—usually in the form of research and development or operating funds—before they are approved by Congress as a line-item construction project." Johnson specifically requested the GAO to report on "the size and nature of the investment in such new facilities—or major upgrades—prior to approval of construction."

Among the facilities he listed, Johnston focused on the gestating Continuous Electron Beam Accelerator Facility, officially abbreviated as CEBAF, but known on Capitol Hill as the Warnertron, after the Senator who helped snare it for a site at Newport News, Va. Now sweating out a 1-year freeze on federally financed construction projects (SGR Vol. XV, No. 10), CEBAF, as Johnston noted in his GAO letter, may be listed for startup construction funds in the fiscal 1987 presidential budget, which will go to Congress early next year. Johnston asked the GAO for "a report describing the events and procedures which led to the CEBAF proposal and DOE's endorsement. Please include a description of the review and selection process for CEBAF and considerations given by the Department and others to cost-effective alternatives," the Senator requested.

The inquiry now in the works is a followup to a review of high-energy physics expenditures that Johnston also requested from the GAO. That study resulted in a report, *DOE's Physics Accelerators: Their Costs and Benefits,* released in June (SGR Vol. XV, No. 12).

Lederman *(Continued from page 5)*

nuclear domain, continuing to seek a unified and complete description of the physical world.

In 1985, thanks to a series of postwar accelerators, the problems of particles and cosmology have been merged and we are at the threshold of a synthesis more powerful and more profound than anything that has gone before.

Cosmology suggests to us that in the beginning there was no space, no time, no matter; only the laws of nature which determined all that followed. Our complex world was inevitably constructed by these laws, but our search for understanding proceeds backwards to the most primordial beginnings. The SSC, or something very much like it, is an essential element in this search. Is this the time to stop?

LEON LEDERMAN
DIRECTOR, FERMILAB
BATAVIA, ILL.

In Print *(Continued from page 6)*

tax credit effective back in 1981, 1982, and 1983?" asks Brown. "Just barely, but it's hard to say," he replies. "Would a tax credit be cost-effective in 1986 and later years?" he next asks. The answer to that: "Very likely yes."

(28 pages, no charge, Joint Economic Committee, Suite SDG01, Senate Office Bldgs., Washington, DC 20510; tel. 202/224-5171.)

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Financing and Managing University Research Equipment, report of an extensive study by the Association of American Universities, National Association of State Universities and Land-Grant Colleges, and the Council on Government Relations; urges additional help from Washington, the states, and private sources; also advises universities to make more efficient of equipment and to employ leasing, debt financing and other financial alternatives for acquiring and managing research equipment.

(237 pages, no charge, AAU, One DuPont Circle, Suite 730, Washington, DC 20036; tel. 202/466-5030.)

Star Wars Security Policy Stirs Academic Dispute

Star Wars' manager for basic research has earnestly sought to provide assurances that his program will shun security classifications for research it supports in universities, but the matter slid into a semantic muddle when he introduced a 3-paragraph memorandum that obviously allowed other possibilities. "I'm only a physicist," he asserted in defense of his literary creation.

The setting for what turned into an exercise in textual analysis was a meeting September 13 of the Working Group on Export Controls, which was doing groundwork in preparation for a meeting October 7 of its parent body, the DoD-University Forum. Composed of 12 Pentagon officials and 12 university presidents, the Forum, which usually meets twice a year, is intended to reduce friction and promote cooperation between academe and the military.

The Working Group, meeting in open session with a few members of the press looking on, listened with interest as James Ionson, Director of the Strategic Defense Initiative Office of Innovative Science and Technology (IST), read SDI's long-awaited policy statement on classification of research supported in universities.

Titled "Reporting the Results of SDIO Sponsored Innovative Science and Technology Research," the memorandum commenced with a standard statement about the importance of science for defense. "Openness in fundament research," it went on, "promotes progress toward application of research results." It then added that research supported on university campuses by IST "will be treated as 'fundamental research,'" though funded from the DoD budget account, 6.3, which frequently supports classified research. The difficulties arose from the next paragraph:

> Decisions regarding publication of results of unclassified IST research performed on university campuses will normally be the responsibility of the university author. However, where there is likelihood of disclosing operational capabilities and performance characteristics of planned or developing military systems, or technologies unique and critical to defense programs, the contract will stipulate that the responsibility for the release of information resulting from IST research belongs to the sponsoring office."

Professor David Wilson, UCLA political scientist who co-chaired the Working Group, protested that the intent of the memorandum was fogged by *normally* and the *However* that began the next sentence. Ionson responded that " 'However' refers to other potential layers of contracts," adding that university researchers are often unacquainted with what's militarily sensitive and, therefore, welcome guidance on security.

Whereupon, Gerald Lieberman, Stanford Dean of Graduate Studies and Research, warned that his university and many others would not permit researchers to accept research contracts that allowed for security classifications—before or after the project was underway.

Ionson persisted that his office was merely trying to help reseachers.

The matter can be expected to arise again when the Forum meets next week.

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